

Appl. No. : 09/830,634
Filed : April 27, 2001

REMARKS

The specific changes to the amended specification are shown on a separate set of pages attached hereto and entitled VERSION WITH MARKINGS TO SHOW CHANGES MADE, which follows the signature page of this Amendment. On this set of pages, the insertions are underlined while the [deletions are in brackets].

Discussion of the Specification

The Examiner has objected to the Abstract as including the phrase "The invention relates to". Applicant has amended the Abstract to conform to the practices set forth in MPEP §608.01(b). A copy of the Abstract on its own sheet is attached.

The Examiner has also objected to the disclosure because the application includes Cyrillic characters. Applicant has amended the paragraphs in the Specification to cancel the Cyrillic characters.

Discussion of the Information Disclosure Statement

The Examiner has noted that the listing of references in the specification is not a proper information disclosure statement. Applicant notes that a separate Information Disclosure Statement (IDS) was mailed February 6, 2002, before the date of the first Office Action. The IDS lists each of the references discussed in the Specification. Applicant believes that the Feb. 6, 2002 IDS is in proper form. Applicant believes that the Examiner may not have received the IDS prior to mailing the Office Action. Applicant will correct the IDS in a subsequent paper if the Examiner identifies reasons that the Feb. 6, 2002 IDS is believed to be improper. Applicant's representative respectfully requests that the Examiner place a telephone call and request a copy if one cannot be located in the file.

Summary of Claims

Claims 9-19 are pending in the application. The Examiner has rejected Claims 9-11 under 35 U.S.C. §102(e) as allegedly anticipated by McCormack et al. (US 6,054,761, hereinafter McCormack). The Examiner has rejected Claim 12 under 35 U.S.C. §103(a) as allegedly unpatentable over McCormack. The Examiner has allowed Claims 13-19.

Applicant appreciates and acknowledges the allowance of Claims 13-19.

Discussion of Rejections Under 35 U.S.C. §102

A reference anticipates a claim if the reference teaches every aspect of the claimed invention, either explicitly or impliedly. Applicant respectfully believes that McCormack fails to teach every aspect of Claim 9.

McCormack discloses printed circuit substrates and electrical assemblies including a conductive composition. *McCormack* Abstract and Col. 2 ll. 45-50. McCormack discloses a first embodiment having a first conductive pad 12 disposed on a first dielectric layer 11 and a second conductive pad 22 disposed on a second dielectric layer 21. The two conductive pads, 12 and 22, are bonded together using a conductive composition 41 deposited in an aperture of a bonding sheet 31 interposed between the first and second dielectric layers 11 and 21. *See generally* Figure 1(f) and Col. 9 line 21 through Col. 11 line 12.

McCormack discloses a second embodiment where each of first and second circuitized structures 50, 60 includes an aperture. *McCormack* Col. 11 ll. 34-36. A via structure "is disposed in an aperture in the dielectric layer 32 and is disposed between the apertures in the first circuitized structure 50 and the second circuitized structure 60." *McCormack* Col. 11 ll. 49-53. Thus, in McCormack, the two apertures must be aligned in order for the via structure to be disposed between them. Additionally, McCormack requires a dielectric layer 32 interposed between the first and second circuitized structures. *See generally, McCormack* Fig. 2(a). Moreover, McCormack states that "the conducting regions in electrical communication with the via structure are generally annular conductive structures ... and *are not generally planar conductive pads.*" *McCormack* Col 12 ll. 1-5 (*emphasis added*).

In a third and final embodiment, McCormack discloses a structure very much like the second embodiment. *See generally, McCormack* Fig. 2(b). "A via structure 91 ... is disposed in an aperture in the dielectric layer 33 and is disposed between the apertures in the first circuitized structure 70 and the second circuitized structure 80." *McCormack* Col. 12 ll. 27-31. In this structure, like the one in Fig. 2(a), the apertures in the circuitized structures must be aligned.

Applicant's Claim 9 recites, in part, "a plurality of contact nodes in the form of metallized contacts mutually aligned and interconnected electrically and mechanically ... some of which contacts are contact pads coupled with conductive conductive paths ... and other contacts aligned with the contact pads are made in the form of metallized holes formed as

truncated cones." Thus, the claim recites a truncated cone aligned with a contact pad. Claim 9 also recites "wherein the contact nodes are made in the form of joints between the contacts". An example of the claimed structure is shown in Fig. 1a. Thus, the claimed contact nodes include contact pads, which are metallized contacts, interconnected electrically and mechanically with metallized holes formed as truncated cones.

McCormack fails to teach at least the aspect of Claim 9 where a contact pad is electrically and mechanically interconnected with a metallized hole formed as a truncated cone. McCormack discloses an embodiment where two conductive pads are bonded together using a conductive composition, where the conductive composition is maintained in place using a bonding sheet interposed between dielectric layers. Other embodiments disclosed in McCormack require the alignment of two apertures and the formation of a via structure between the two apertures in a dielectric layer interposed between first and second structures. In the embodiments shown in McCormack FIG.s 2(a) and 2(b), each circuit contains an aperture and the two apertures must be aligned. McCormack does not teach or suggest contact pads, which are metallized contacts, interconnected electrically and mechanically with metallized holes formed as truncated cones. As discussed above, in McCormack at Col. 11 ll. 49-53, the two apertures must be aligned in order for the via structure to be disposed between them. In contrast, Claim 9 does not recite an alignment of two apertures. In Claim 9 contact pads, which are metallized contacts, are interconnected electrically and mechanically with metallized holes formed as truncated cones. Thus, McCormack fails to teach or suggest at least the claimed feature of a metallized contact pad interconnected with a metallized hole formed as a truncated cone. Thus, because McCormack fails to teach or suggest at least one element of Claim 9, Applicant respectfully requests reconsideration and allowance of Claim 9.

Claims 10-11 depend from Claim 9 and are believed to be allowable at least for the reason that they depend from a base claim that is believed to be allowable, and for patentable features within each claim. Particularly, with respect to Claim 10, McCormack teaches away from using flat contact pads. ("[T]he conducting regions in electrical communication with the via structure are generally annular conductive structures ... and *are not generally planar conductive pads.*" McCormack Col 12 ll. 1-5 (*emphasis added*). Applicant respectfully requests allowance of Claims 10-11.

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Discussion of Rejections Under 35 U.S.C. §103

Applicant believes that for the same reasons recited above, Claim 9 is not obvious in light of McCormack. As noted above, McCormack not teach or suggest contact pads, which are metallized contacts, interconnected electrically and mechanically with metallized holes formed as truncated cones. Moreover, McCormack explicitly teaches away from such a structure.

Thus, Claim 9 is believed to be non-obvious over McCormack. Claim 12 depends from Claim 9 and is believed to be allowable at least for the reason that it depends from a base claim that is believed to be allowable. Applicant respectfully requests reconsideration and allowance of Claim 12.

CONCLUSION

The Applicant has endeavored to address all of the Examiner's concerns as expressed in the outstanding Office Action. In light of these amendments and remarks, reconsideration and withdrawal of the outstanding rejections is respectfully requested. Applicant submits that the claim limitations discussed above represent only illustrative distinctions. Hence, there may be other patentable features that distinguish the claimed invention from the prior art.


If there are any impediments to allowance of the claims that can be resolved with a telephone call, the Examiner is respectfully invited to call the undersigned.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

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